

Claims

1. Method for extinguishing a fire in a space, especially in a tunnel or equivalent, in which method an extinguishing medium is sprayed in the space by means of spraying heads, characterized in that, in a first stage of the method, the flow and temperature of the hot gases produced by the fire are influenced by spraying an extinguishing medium into the space, especially by creating in the space at least one curtain (7) of extinguishing medium, and at least some spraying heads (11, 12) in the space are pre-activated into a state of readiness, and in a second stage at least one spraying head is activated to produce a spray of extinguishing medium.
2. Method according to claim 1, characterized in that, during the first stage, the curtain (7) of extinguishing medium is formed in a substantially transverse direction relative to the space.
3. Method according to claim 1 or 2, characterized in that the curtain (7) of extinguishing medium is formed by means of spraying heads (6) arranged in a transverse direction relative to the space.
4. Method according to any one of claims 1 – 3, characterized in that, when the spraying heads (11, 12) are to be pre-activated into a state of readiness, a protective means protecting at least one nozzle and/or heat-activated triggering means of the spraying head is released.
5. Method according to any one of claims 1 – 4, characterized in that, in the method, the space is divided into zones (4).
6. Method according to any one of claims 1 – 5, characterized in that the space is divided into fire zones (4), and at least one curtain (7) of extinguishing medium is formed in each one of said zones when necessary and at least some of the spraying heads (11, 12) in the fire zone in question are pre-activated into a state of readiness either manually or on the basis of a signal given by a fire detector (17).

7. Method according to any one of claims 1 – 6, characterized in that the extinguishing medium used is an aqueous liquid and/or a mixture of an aqueous liquid and a gas.

5 8. Method according to any one of claims 1 – 7, characterized in that a mist of extinguishing medium, especially water mist, is sprayed through the spraying heads.

9. Method according to any one of claims 1 – 8, characterized
10 in that the extinguishing medium is sprayed at a high pressure, preferably 10 – 300 bar.

10. Method according to any one of claims 1 – 9, characterized
15 in that adjacent fire zones are so formed that they partially overlap at least in their edge areas.

11. Apparatus for extinguishing a fire in a space, especially in a tunnel or equivalent, said apparatus comprising spraying heads arranged in the space and a piping system for conveying an extinguishing medium
20 to the spraying heads, characterized in that the apparatus comprises first nozzles, preferably mounted on first spraying heads, for forming at least one curtain (7) of extinguishing medium in the space and a number of spraying heads (6, 11, 12) provided with a protective
25 element, such as a protective cup, for protecting at least one nozzle and/or heat-activated triggering means of the spraying head, said apparatus being used in a stage-wise manner, wherein in a first stage the flow and temperature of the hot gases produced by the fire are influenced by spraying an extinguishing medium into the space, especially
30 by forming at least one curtain (7) of extinguishing medium, preferably by means of the first nozzles of the first spraying heads (6), and a number of second spraying heads (11, 12) are pre-activated by releasing the protecting element covering the nozzle and/or heat-activated triggering means, and in a second stage one or more of the second
35 spraying heads (11, 12) are activated to produce a spray of extinguishing medium.

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12. Apparatus according to claim 11, characterized in that the nozzles used to form a curtain of extinguishing medium have been arranged to form a curtain (7) of extinguishing medium in a substantially transverse direction relative to the space.

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13. Apparatus according to claim 11 or 12, characterized in that, in a non-activated state, the spraying heads (6, 11, 12) are provided with protective elements protecting at least one nozzle and/or heat-activated triggering means of the spraying head.

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14. Apparatus according to any one of claims 11 - 13, characterized in that the apparatus has been divided into several fire zones (4).

15. Apparatus according to any one of claims 11 - 14, characterized in that the apparatus has been divided into several fire zones by means of valve elements (126, 16') and/or check valves (14, 15).

16. Apparatus according to any one of claims 11 - 15, characterized in that the apparatus comprises at least one detector (17) for detecting a fire.

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17. Apparatus according to any one of claims 11 - 16, characterized in that the apparatus comprises spraying heads (11) disposed in the edge areas of the space.

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18. Apparatus according to any one of claims 11 - 17, characterized in that at least the spraying heads (11) disposed in the edge areas are placed at a height of 3-5 m from the floor level of the space.

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